

Work Order ID 65731

Monday, January 24, 2011 3:34:40 PM



Page 1

Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 1/24/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 2/7/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

PL

Date: 11-01-24 Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2580

Rev.D DEO-D1

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG003

M N 02 08
H for CL 11-02-09

110

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

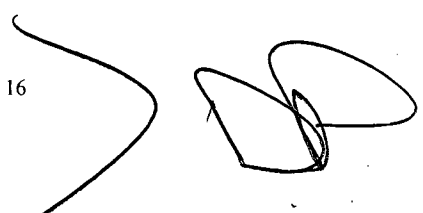
0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube



11-1-27

52

Work Order ID 65731

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Page 2

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Start Date: 1/24/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 2/7/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

0.00



Skidtubes

Memo

0.00

Skidtubes

1- Deburr ends and remove bending marks

2- Prepare tube for swaging as per QSI 002

130

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

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Required Date: 2/7/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

140

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Weld step D2576 as per Dwg. D2580 and QSI004
A/R□□□ Aluminum Rod

2-Grind welds on step as per Dwg D2580

3-Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002
and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start
expantion and finish with 1/2 x 18G to achieve dwg dimention.

4-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64",
adjust stopper not to hit web.Deburr

6-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr

7-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr

150



QC

Quality Control

QC10- Inspect visual per QSI004- ground welds

0.00

Memo

0.00

Swirlon

BE 11/01/31
BE 11/01/31

BE 11/02/03

BR

11/02/03

RU

Work Order ID 65731

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Page 4

Item ID: D205-634-041

Accept



Setup Start



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Item Name: Replacement Skidtube

Stop



Start Date: 1/24/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 2/7/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Sub 103

70

Quality Control

170

Pressure Wash per QSI005 4.3

0.00



HandFinish

Memo

0.00

1 BR 11-02-7

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Memo

0.00

1 BR 11-02-7

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

11:15.
330°
11:45

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Page 5

Item ID: D205-634-041

Accept

Setup Start

Revision ID:

Stop

Item Name: Replacement Skidtube

Start Date: 1/24/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 2/7/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 0 1102108

Work Order ID 65731



Page 6

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Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 1/24/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 2/7/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

0.00 ~)



HandFinish

Memo

0.00

Hand Finishing

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of

✓ Sikaflex on insert holes before installing wearplates

A/R ☐ ☐ ☐ Sikaflex-291 ☐ M115104

Sikaflex expire date: 1/01

✓ 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

✓ 3-Inspect for foreign object per QSI 024

✓ 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with

Sikaflex. Clean excess adhesive

A/R ☐ ☐ ☐ Sikaflex-291 ☐ M11514

Sikaflex expire date: 1/19

✓ 5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: M116402

1 0/ 11/02/006

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Item ID: D205-634-041

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Setup Start

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Item Name: Replacement Skidtube

Start Date: 1/24/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 2/7/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

220

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD205-634-041

Location: 72
PPP Rev: 2

230

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

70

11/2/09

11/02/10

MF
11-02-09

Picklist Print

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Page 1

Work Order ID: 65731



Parent Item: D205-634-041



Parent Item Name: Replacement Skidtube




Start Date: 1/24/2011

Required Date: 2/7/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30
KJ IPP Rev P 10.02.19
per PAR09-043 EC verified by:DD
IPP Rev. O 06.02.28 Added paperwork EC
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q
10.12.01 as per chg003 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1  Spacer		Manufactured	No			140	Each	106.0000	20	20			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>106</div> <div></div> </div>													
<div> <div>64608</div> <div>106</div> <div></div> </div>													
D2580-1  205 Skidtube bent detail		Manufactured	No			110	Each	2.0000	1	1			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>1</div> <div></div> </div>													
<div> <div>63051</div> <div>1</div> <div></div> </div>													
<div> <div>ST046</div> <div>1</div> <div></div> </div>													
<div> <div>59856</div> <div>1</div> <div></div> </div>													
D2576-3  Step (maching detail)		Manufactured	No			140	Each	62.0000	1	1			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>62</div> <div></div> </div>													
<div> <div>46661</div> <div>14</div> <div></div> </div>													
<div> <div>52215</div> <div>48</div> <div></div> </div>													

BE 1/102/03

① DP 1/1-1-27

BE 17-1-31

Picklist Print

Page 2

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Work Order ID: 65731



Parent Item: D205-634-041



Parent Item Name: Replacement Skidtube

Start Date: 1/24/2011

Required Date: 2/7/2011

Start Qty: 1.00

Required Qty: 1.00

D2855

Manufactured No

200

Each

54.0000

1

1



11/02/08

Cap

Location

Loc Qty

Loc Code

FP6

3

56613

1

63634

2

ST026

51

50513

1

50770

28

51539

2

53791

20

x1

AN3-5A

Purchased

No

200

Each

1,079.000

2

2



11/02/08

Bolt

Location

Loc Qty

Loc Code

ST350

1079

115016

379

115371

500

116632

200

x2

AN960JD10L

NAS1149D0332J

Purchased

No

200

Each

0.0000

2

2



M116441



x2 11/02/08

Washer

Picklist Print

Page 3

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Work Order ID: 65731



Parent Item: D205-634-041



Parent Item Name: Replacement Skidtube

Start Date: 1/24/2011

Required Date: 2/7/2011

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130 Purchased

No

200

Each

1,628.000

50

50



11/02/08

Insert

Location

Loc Qty

Loc Code

FP 689
115079 689
ST282 939
113238 17
115502 500
115581 422

✓50

AN3C4A

Purchased

No

200

Each

1,222.000

50

50



11/02/08

BOLT

Location

Loc Qty

Loc Code

ST350 1222
115300 25
116075 997
116590 200

✓50

AN960C10L

NAS1149C0332
R

Purchased

No

200

Each

25.0000

50

50



11/02/08

washer

Location

Loc Qty

Loc Code

ST245 25
107534 25

1116025

✓50

Monday, January 24, 2011 3:34:50 PM

Shop Packet Print

Page 3

Picklist Print

Monday, January 24, 2011 3:34:51 PM

Work Order ID: 65731

Parent Item: D205-634-041



Parent Item Name: Replacement Skidtube

Start Date: 1/24/2011

Required Date: 2/7/2011



Start Qty: 1.00

Required Qty: 1.00

D3566-13 Manufactured No 200 Each 26.0000 1 1
  XL 11/02/08
 Gasket



Location Loc Qty Loc Code

FP012 6
61996 6
 FP014 20
64070 20

D3566-5 Manufactured No 200 Each 11.0000 1 1
  XL 11/02/08
 Gasket



Location Loc Qty Loc Code

FP 10
64789 10
 FP015 1
63574 1

D3566-1 Manufactured No 200 Each 6.0000 2 2
  XL 11/02/08
 Gasket

Location Loc Qty Loc Code

FP015 6
 57715 1
 63573 5

D3564-11 Manufactured No 200 Each 8.0000 1 1
  XL 11/02/08
 Wearshoe

Location Loc Qty Loc Code

FP019 8
62236 8

Picklist Print

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Work Order ID: 65731



Parent Item: D205-634-041



Parent Item Name: Replacement Skidtube

Start Date: 1/24/2011

Required Date: 2/7/2011

Start Qty: 1.00

Required Qty: 1.00

D3564-13

Manufactured No

200

Each

16.0000

1

1



gl 11/02/08

Wearshoe

Location

Loc Qty

Loc Code

FP17

16

59660

1

61828

3

62229

12

xl

D3564-9

Manufactured No

200

Each

17.0000

1

1



xl 11/02/08

Wearshoe

Location

Loc Qty

Loc Code

FP

1

55334

1

FP019

1

61709

1

FP19

15

62238

15

xl

D3564-5

Manufactured No

200

Each

21.0000

1

1



xl 11/02/08

Wearshoe

Location

Loc Qty

Loc Code

FG

1

34806

1

FP19

2

57525

1

58709

1

FP-19

18

63575

7

65058

11

xl

Picklist Print

Page 6

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Parent Item: D205-634-041



Parent Item Name: Replacement Skidtube

Start Date: 1/24/2011

Required Date: 2/7/2011

Start Qty: 1.00

Required Qty: 1.00

D2594-3

Manufactured No

200

Each

739.0000

16

16



O-Ring, 205 Skidtube



JL 1/10/2108

LocationLoc QtyLoc Code

FP

43

55546

19

58191

12

59358

12

fpa

696

61762

696

X16

D2594-1

Manufactured No

200

Each

235.0000

16

16



Plug, 205 Skidtube



JL 1/10/2108

LocationLoc QtyLoc Code

FP

183

42807

112

55002

71

FP14

52

58434

15

62893

37

B65980

X16



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07.06.28 *[Signature]*

DEO ATTACHED

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

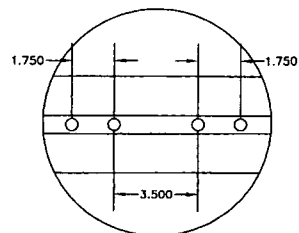
SHOP COPY
RETURN TO
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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 45731

2811-0124

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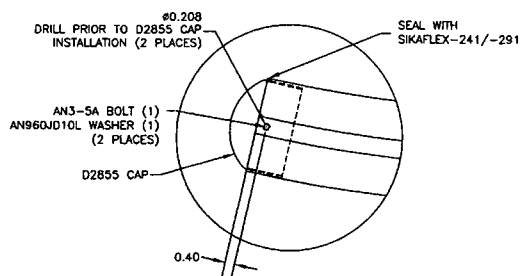
DETAIL A
SCALE 5:24



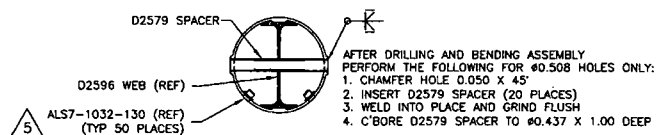
RELEASED
07-06-28

DEO ATTACHED

DETAIL C
SCALE 5:24



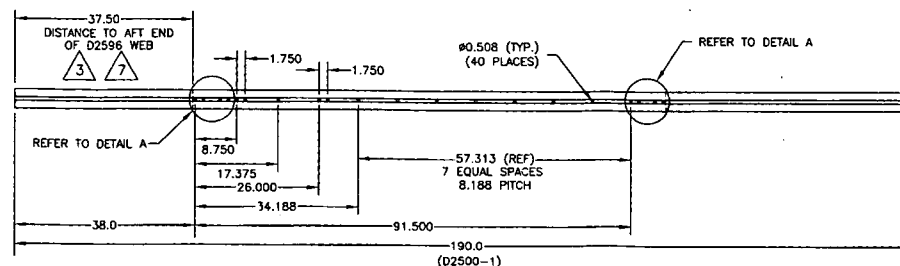
SECTION D-D
SCALE 5:24



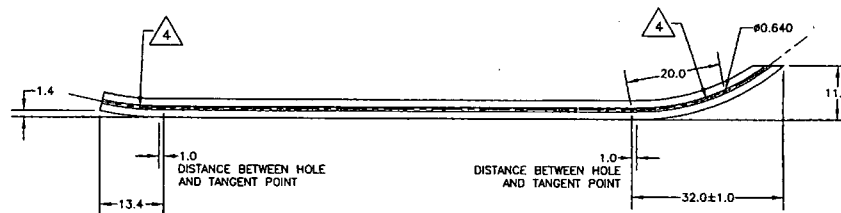
D2580-041 NOTES

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

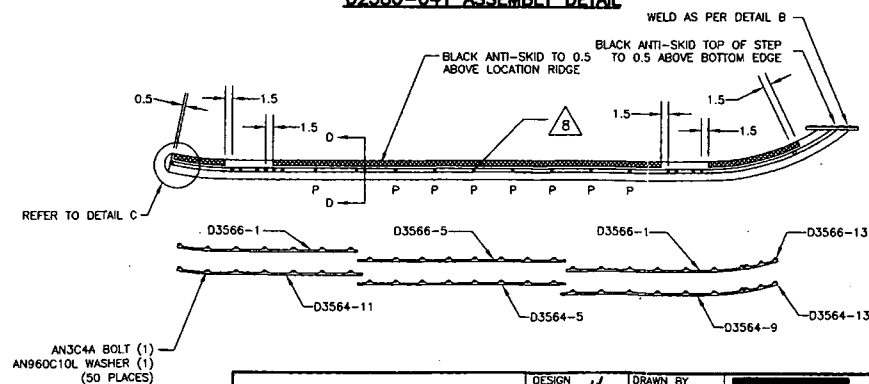
D2580-1 DRILLING DETAIL



D2580-1 BENDING AND CUTTING DETAIL





D2580-041 ASSEMBLY DETAIL



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DART AEROSPACE LTD.

DESIGN	
CHECKED	
DATE	07.02.27

DRAWN BY	PH
APPROVED	H

		DART AEROSPACE LTD. WAINSBURY, ONTARIO, CANADA	
DRAWING NO.		REV.	
D2580		SHEET 2 OF 3	
TITLE		SCALE	
205 SKIDTUBE ASSEMBLY			

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. D	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D2580-D-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>L</i>	MFG. APPR. <i>B</i>	APPROVED <i>MP</i>		DE APPR. <i>H</i>		
DATE 10.09.22	DATE 10.11.04	DATE 10.11.04	DATE 10/11/04		DATE 10.11.04		

PURPOSE:

CHANGE ALL WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

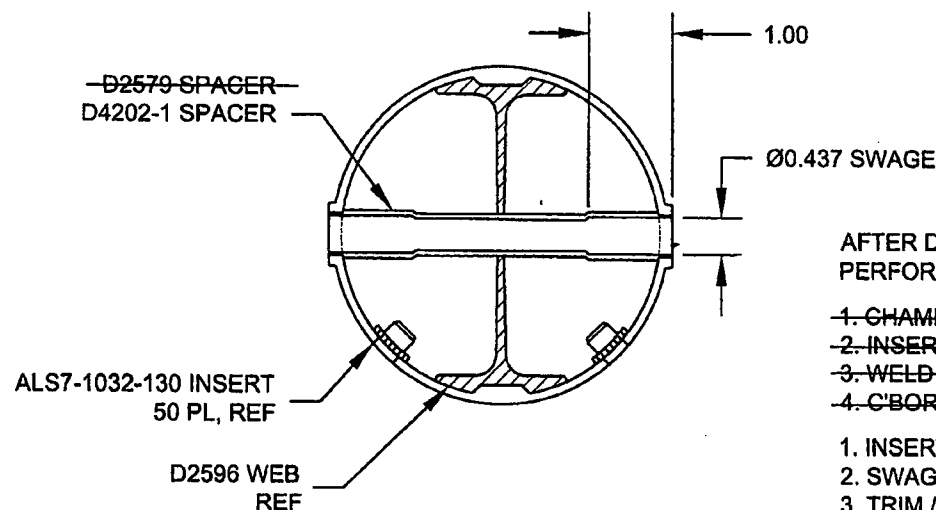
WAS

QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045		
20	24	D2579	CROSS BOLT SPACER

IS

20	24	D4202-1	SPACER
----	----	---------	--------

SECTION D-D & SECTION H-H ARE AMENDED AS FOLLOWS:



SECTION D-D
NOT TO SCALE

SECTION H-H
NOT TO SCALE

RELEASED
2010-11-18
MP

AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C-BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 24 PL (-045)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

